PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 109295

Date: December 19, 1975

Title: Borated Water Storage Tank Level Indication Fails at Oconee

The failure sequence was:

 Both channels of BWST level indication failed due to freezing of moisture in the 1 vel transmitter impulse lines. This was caused by a failure in the trace heating for the instrument air lines to the transmitters.

Corrective action;

- 1. Reactor shutdown was initiated.
- 2. Independent power sources were provided for each heat tracing circuit, resulting in redundant heat tracing.

Design purpose of failed system or component:

1. The level transmitters provide alarms when the BWST level is such that the operator should switch suction of the emergency core cooling pumps from the BWST to the containment sump for recirculation cooling.

Unavailability of system per WASH 1400; * low pressure recirculation: 3.1×10^{-2}

Unavailability of component per WASH 1400:* Failure rate of wires to open: $3 \times 10^{-6}/hr$.

"Unavailabilities are in units of per demand $D^{-1}\,.\,$ Failure rates are in units of per hour $\mathrm{HR}^{-1}\,.$



B-278

	Small LOCA	Reactor Trip	Auxiliary Feedwater and Secondary Heat Removal	High Pressure Injection	Low Pressure Recirculation and LPR/HPI Cross-Connect	Potential Severe Core Damage	Sequence No.
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NSIC 109295 - Sequence of Interest for Failure to BWST Level Indication at Oconee 1

* success requires the operator to switch to recirculation without BWST indication after sufficient water has been injected for LP pump NPSH and before the BWST is emptied, and without level indication.

	CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS
NSIC A	CCESSION NUMBER: 109295
DATE O	F LER: January 7, 1976
DATE O	F EVENT: December 19, 1975
SYSTEM	INVOLVED: Low pressure injection (decay heat removal)
COMPONI	ENT INVOLVED: BWST level indicators
CAUSE:	Frozen impulse line due to heat tracing failure
SEQUEN	CE OF INTEREST: LOCA
ACTUAL	OCCURRENCE: Frozen BWST level impulse lines during power operation
REACTO	R NAME: Oconee 1
DOCKET	NUMBER: 50-269
REACTO	R TYPE: PWR
DESIGN	ELECTRICAL RATING: 887 MWe
REACTO	R AGE: 3.0 yr
VENDOR	: B&W
ARCHIT	ECT-ENGINEERS: Duke Power Co.
OPERAT	ORS: Duke Power Co.
LOCATI	ON: 30 miles west of Greenville, SC
DURAT I	ON: 360(a) hours
PLANT	OPERATING CONDITION: at 100% power
SAFETY	FEATURE TYPE OF FAILURE: (a) inadequate performance; (b) failed to start;
DISCOV	ERY METHOD: During power operation
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